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10/733,282	12/12/2003	Philippe Le Tourneur	246399US6	8244
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER MONDT, JOHANNES P	
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/733,282	Applicant(s) LE TOURNEUR, PHILIPPE	
	Examiner Johannes P. Mondt	Art Unit 3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 3,4,7,9,14-17,22 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,8,10-13 and 18-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/30/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's provisional election with traverse of Group I, Species 1, in the reply filed on 12/27/05 is acknowledged. Applicant adds that claims 1, 2, 5, 6, 8, 10-13 and 18-21 read on the elected invention.

The traversal is on the grounds that the search areas overlap, from which Applicant concludes directly and without explanation that "there is no serious burden". This is not found persuasive because the measure of the union of two overlapping domains exceeds the measure of any individual one of said two domains. Examiner gave arguments based on classification and the showing that definite criteria according to MPEP 806.05(h) are met. Applicant has not even commented on said arguments.

The requirement is still deemed proper and is therefore made FINAL.

In addition, the elected claims depend in part on non-elected claims. For the purpose of compact prosecution objections to said claims are offered with specific interpretation by examiner: in particular, the dependence on claim 4 of claim 5 is assumed to be removed as required by an objection to claim 5; the dependence on claim 16 of both claims 18 and 19 is assumed to be replaced by a dependence on any of the foregoing elected claims but with specific introduction of said a particle detector when necessary.

Specification

The following is a quotation of the first paragraph of 35 U.S.C. 112:

Art Unit: 3663

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The Specification is objected to because the claimed "coded mask" (claim 1, line 6, and through dependence all of the elected claims) is defined as a "mask pierced with a plurality of holes in a *more or less random* manner", with the degree of randomness not being disclosed at all. In contrast, the concept "code", with "coded" having the obvious meaning of "conducted according to a code", means something *systematic* in all its meanings relevant to the art (see Merriam-Webster's Collegiate Dictionary, 10th Edition (1998), page 221). Therefore, the written description falls short of providing a disclosure for "coded mask" because "coded" as known in the art appears to contradict its definition according to specification, while "more or less" random does not provide any clear bounds as to what is included in the meaning of "coded mask".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The Specification is objected to because "coded mask" (claim 1, and through dependence all of the elected claims) as defined, namely as a "mask pierced with a plurality of holes in a *more or less random* manner" (italics added for emphasis) is an indefinite concept: "coded" means "conducted according to a code", being systematic in all its meanings relevant to the art (see Merriam-Webster's Collegiate Dictionary, 10th Edition (1998), page 221) contradicts the meaning given by Applicant. Therefore, "coded mask" is indefinite, a random aspect being both included and excluded in the term "coded mask".

Claim Objections

1. **Claim 5** is objected to as being dependent on non-elected claim 4. The wording "claims 2 or 4" (line 1) should be replaced by "claim 2". In the sequel this claim is interpreted for examination purposes in accordance with this replacement.
2. **Claims 18-21** are objected to as being dependent on non-elected claim 16.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. **Claims 1, 2, 5, 6, 8, 10-13 and 18-21** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

The claims contain subject matter not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor, at the time the application was filed, had possession of the claimed invention. In particular, and with reference to the objection to the Specification made above and herewith repeated: the claimed "coded mask" (claim 1, line 6, and through dependence all of the elected claims) is defined as a "mask pierced with a plurality of holes in a *more or less random* manner", with the degree of randomness not being disclosed at all. In contrast, the concept "code", with "coded" having the obvious meaning of "conducted according to a code", means something *systematic* in all its meanings relevant to the art (see Merriam-Webster's Collegiate Dictionary, 10th Edition (1998), page 221). Therefore, the written

Art Unit: 3663

description falls short of providing a disclosure for "coded mask" because "coded" as known in the art appears to contradict its definition according to specification, while "more or less" random does not provide disclosure of a "coded mask" ordinarily known to be created according to a definite system.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 1, 2, 5, 6, 8, 10-13 and 18-21** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, "coded mask", in light of the definition on page 9, as "mask pierced with a plurality of holes in a *more or less random* manner", renders the claims indefinite for the reasons discussed above in the objection to the Specification herewith incorporated through reference.
3. **Claims 1, 2, 5, 6, 8, 10-13 and 18-21** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation "of the type" in "of the type of a coded mask" renders the claims indefinite because it is not established in a definite manner whether or not a "coded mask" is required. The disclosure does not offer a criterion for establishing what is meant by "of the type", nor is it known in ordinary language what the bounds are of things "of the type" of coded masks.

4. **Claim 6** recites the limitation "the metal hydride" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. **Claims 1, 8, 10, 12, 13, 18, 20 and 21** are rejected under 35 U.S.C. 102(b) as being anticipated by Cluzeau (FR 2738 669) (as made of record by Applicant in IDS as item AO). This rejection is offered subject to the noted lack of proper written description and the noted indefiniteness as detailed above, and is made to the best understanding of examiner, assuming that "coded mask" is defined according to the ordinary meaning in the art rather than the definition given in the specification.

Cluzeau teaches a target 29/65 (abstract, page 1, line 18 – page 2, line 28, page 12, lines 15-20, showing the mask 65 "very close to" 29 in the relevant embodiment illustrated by Figure 6 (and parallel to it, see Figure 6) and page 3, lines 3-9 and Figures 1, 3 and 6; for element 65 see page 18, lines 27-36 and Figure 6) intended to emit neutrons when bombarded with particles (in particular, ion beam 27 (see abstract)), characterized in that it comprises neutron emissive parts (corresponding to the predetermined openings in the mask 65) and neutron non-emissive parts

Art Unit: 3663

(corresponding to the remainder of the mask not exposed by said openings, as they do not emit neutrons) forming a pattern of the type of that of a coded mask 65.

On claim 8: the invention by Cluzeau is a particle accelerator (Penning ion source 26 (page 11, lines 5-8)) characterized in that it contains a target 29/65 according to claim 1 (see rejection of claim 1).

On claim 10: the particle accelerator is further characterized in that it is equipped with α - particle detector (35 or 15/35) (see abstract, first sentence, Figures 1 and 2) associated with the emission of neutrons (the alpha particles and neutrons are emitted in exactly opposite directions and through the same nuclear reaction $^3\text{H}(\text{d},\text{n})^4\text{He}$ (page 2) by conservation of linear momentum).

On claim 12: the target 29/65 is inclined in relation to the direction of the particles (in the ion beam 27) that are bombarding it (see Figure 2).

On claim 13: the target 29/65 is substantially parallel to the α particle detector 35 (Figure 6).

On claims 18, 20 and 21:

These rejections are offered strictly within the context of the noted objection to this claim as being dependent on a non-elected claim and with re-interpretation as delineated above. *On claim 18:* The device by Cluzeau contains a neutron generating tube 21 including the target 29/65 (N.B.: claim 16, while not elected by Applicant would be met) is equipped with a particle detector 15/35 associated with the emission of neutrons (the alpha particles and neutrons are emitted in exactly opposite directions and through the same nuclear reaction $^3\text{H}(\text{d},\text{n})^4\text{He}$ (page 2) by conservation of linear

Art Unit: 3663

momentum). *On claim 20*: the target 29/65 is inclined in relation to the direction of the particles (in the ion beam 27) that are bombarding it (see Figure 2)..*On claim 21*: the target 29/65 is substantially parallel to the α particle detector 35 (Figure 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. ***Claims 2, 5 and 6*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cluzeau (as cited above for claim 1) in view of Fabian (German patent document 2053881) (made of record in IDS as item AP).

On claim 2:

Cluzeau anticipates claim 1, as detailed above.

Cluzeau teaches the emissive part to be formed of titanium.

Cluzeau does not necessarily teach the further limitation that said emissive part to be formed from at least one metal hydride deposited on a support in non-hydrogen fixing material through a stencil.

However, it would have been obvious to include said further limitation in view of Fabian, who, in a patent document on neutron targets, hence analogous art, teach as ordinary in the art the selection of a target of titanium hydride deposited on a non-hydrogen fixing material (copper) (see page 2, first paragraph).

In reference to the claim language referring to "formed...through a stencil", intended use and other types of functional language must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In re Casey, 152 USPQ 235 (CCPA 1967); In re Otto, 136 USPQ 458, 459 (CCPA 1963).

Motivation to include the teaching by Fabian on metal hydride in the invention by Cluzeau derives from the advantage to impregnate the best metal for this purpose (see page 2, third paragraph) with high hydrogen content so as to increase the density of the true targets, which are the hydrogen isotope atoms therein while copper has the desired high thermal conductivity, as expressed by Fabian (page 2, first paragraph).

On claim 5: in the combined invention as detailed and rendered obvious above under claim 2 the non-fixing material of the support is copper (see Fabian, page 2, first paragraph).

On claim 6: this rejection is offered subject to the noted indefiniteness, assuming the claim language includes metal hydride according to claim 2. In the combined invention the metal of the metal hydride is titanium, thus meeting this further limitation.

7. **Claims 11 and 19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cluzeau (as cited for claim 10) in view of Kassing (DE 3049153 A1).

Cluzeau anticipates claim 10, as detailed above. Cluzeau does not necessarily teach the further limitation defined by claim 11. *However, it would have been obvious to include said further limitation in view of Kassing*, who, in the art of alpha particle

Art Unit: 3663

detectors teach the alpha particle detector to be a semiconductor storage matrix (claim 1 in Kassing) (see also Derwent translation of abstract and equivalent abstract included herewith) connected to an electrical circuit. The pixels by definition are the units of electrical response to the detected alpha particles. *Motivation* to include the teaching by Kassing derives from the efficient spatial resolution obtained in the semiconductor alpha particle detector.

Since claim 19 cannot be allowed to depend on a non-elected claim (claim 16 through claim 18) the examiner assumes the alpha particle detector to be directly introduced in claim 19 with dependence on all preceding elected claims. Claim 19 is rejected as follows:

Cluzeau does not necessarily teach the further limitation defined by claim 19. *However, it would have been obvious to include said further limitation in view of Kassing*, who, in the art of alpha particle detectors teach the alpha particle detector to be a semiconductor storage matrix (claim 1 in Kassing) (see also Derwent translation of abstract and equivalent abstract included herewith) connected to an electrical circuit. The pixels by definition are the units of electrical response to the detected alpha particles. *Motivation* to include the teaching by Kassing derives from the efficient spatial resolution obtained in the semiconductor alpha particle detector.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:.

Fujimura (4,426,722) (as made of record by IDS);

Art Unit: 3663

Verschoore (4,935,194);

Leung (6,907,097 B2).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Johannes P. Mondt whose telephone number is 571-272-1919. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack W. Keith can be reached on 571-272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM
January 9, 2006

Patent Examiner:



Johannes Mondt (Art Unit: 3663)